

WHAT IS CLAIMED IS

1. A USB control circuit with an automatic route-switching function, comprising:

a plurality of USB pads, connecting a plurality of USB devices;

5 a plurality of USB transceivers, each connected to one corresponding USB pad;

at least one USB host/hub controller, each connected to at least one corresponding USB transceivers, so as to control and drive said USB devices connected to said corresponding USB pads by said corresponding
10 USB transceivers;

a plurality of port routing controllers, each connected to one corresponding USB transceiver;

at least one enhanced USB transceiver, each connected to each of said USB pads and each of said port routing controllers;

15 an enhanced USB host/hub controller, connected to each of said enhanced USB transceivers, so as to control and drive at least one enhanced USB device connected to said corresponding USB pads by using said corresponding enhanced USB transceivers; and

20 an enhanced device routing controller, connected to each of said port routing controllers, so as to automatically switch USB pads that connect enhanced USB devices to said enhanced USB transceivers to be controlled by said enhanced USB host/hub controller.

2. The USB control circuit as recited in claim 1, wherein there is a switching device disposed between said enhanced USB transceivers and
25 each of said USB pads.

3. The USB control circuit as recited in claim 2, wherein said switching device is controlled by said enhanced device routing controller to be one of the ON and OFF states of being connected to said enhanced USB transceivers.

4. The USB control circuit as recited in claim 2, wherein said switching device comprises at least one control switch connected to said corresponding enhanced USB transceivers.

5 5. The USB control circuit as recited in claim 4, wherein each of said control switches is connected to said enhanced device routing controller that controls the ON/OFF states of said switch.

6. The USB control circuit as recited in claim 1, wherein the number of enhanced USB transceiver is less than the number of USB pads.

10 7. The USB control circuit as recited in claim 1, wherein each of said port routing controllers comprises a port status register.

8. The USB control circuit as recited in claim 1, wherein said control circuit can be integrated in one of a south bridge chipset and an USB hub controller design.

15 9. A USB control circuit with an automatic route-switching function, comprising:

a plurality of USB pads, connecting a plurality of USB devices;

a plurality of switching devices, each connected to one corresponding USB pad;

20 a plurality of USB transceivers, each connected to one corresponding USB pad;

at least one USB host/hub controller, each connected to at least one corresponding USB transceivers, so as to control and drive said USB devices connected to said corresponding USB pads by using said corresponding USB transceivers;

25 at least one enhanced USB transceiver, each connected to each of said switching devices;

an enhanced USB host/hub controller, connected to each of said enhanced USB transceivers, so as to control and drive at least one enhanced USB device connected to said corresponding USB pads by using said

corresponding enhanced USB transceivers; and

an integrated routing controller, connected to each of said USB transceivers and each of said enhanced USB transceivers, so as to automatically switch USB pads that connect enhanced USB devices to said enhanced USB transceivers to be controlled by said enhanced USB host/hub controller.

10. The USB control circuit as recited in claim 9, wherein said switching device is controlled by said integrated routing controller to be one of the ON and OFF states of being connected to said enhanced USB transceivers.

11. The USB control circuit as recited in claim 10, wherein said switching device comprises at least one control switch connected to said corresponding enhanced USB transceiver.

12. The USB control circuit as recited in claim 11, wherein each of said control switches is connected to said integrated routing controller that controls the ON/OFF states of said switch.

13. The USB control circuit as recited in claim 9, wherein said integrated routing controller comprises a plurality of port status registers.

14. The USB control circuit as recited in claim 9, wherein said control circuit can be integrated in one of a south bridge chipset and an USB hub controller design.

15. A USB control circuit with an automatic route-switching function, comprising:

a plurality of USB pads, connecting a plurality of USB devices;

a plurality of USB transceivers, each connected to one corresponding USB pad;

at least one USB host/hub controller, each connected to at least one corresponding USB transceivers, so as to control and drive said USB devices connected to said corresponding USB pads by using said

corresponding USB transceivers;

at least one enhanced USB transceiver, each connected to each of said USB pads via each of said corresponding switching devices; and

- an enhanced USB host/hub controller, connected to each of said
- 5 enhanced USB transceivers, so as to control and drive at least one enhanced USB device connected to said corresponding USB pads by using said corresponding enhanced USB transceivers.